AMENDMENTS TO THE CLAIMS

Claims 1 - 16 (Cancelled).

17.   (Currently Amended)   A method for increasing the interference resistance of a time domain reflectometer, comprising the steps of:

generating a transmission pulse at a pulse repetition frequency;

coupling said transmission pulse into a waveguide;

scanning a reflected signal which is reflected back by a reflector in contact with the waveguide, for time-expanded display as a reflection profile with scanning pulses repeated at a scanning frequency;

continuously obtaining measured values, from said reflection profiles, that contain the distance of the reflector to a process terminal; and

using an algorithm for deciding the usability of said measured values, which from said measured values and the amount of interference calculates whether said reflection profile is sufficiently free of interference that adequate measurement accuracy is achieved, wherein:

said scanning frequency and said pulse repetition frequency are varied;

~~one of the following conditions apply:~~ the time-expanded display of said reflection profiles remains unchanged, ~~and~~ or if said reflection profiles change over time, the change in the time expansion is known and is taken into account in the evaluation of the profiles; and

the amount of interference is determined from at least one measurement of said reflected profiles or a part thereof.

18. (Currently Amended) The method as defined in claim 17, wherein the algorithm comprises the following steps:

varying said scanning frequency and said pulse repetition frequency, if the amount of interference exceeds a predetermined threshold;

subsequent to said step ~~varying~~ of varying said scanning-frequency and said pulse repetition frequency, determining and assessing again the amount of interference; and

repeating said ~~varying~~ step of varying said scanning-frequency and said pulse repetition frequency and said subsequent determining and assessing step until the amount of interference is below said predetermined threshold.

19. (Previously presented) The method as defined in claim 18, further comprising the step of:

providing a predetermined table which contains suitable frequencies used for determining the variation in said scanning frequency and said pulse repetition frequency, wherein access to said predetermined table is one of: linear and random.

20. (Previously presented) The method as defined in claim 19, further comprising the step of:

selecting said scanning frequency and said pulse repetition frequency from a frequency range for the purpose of changing said scanning frequency and said pulse repetition frequency.

21. (Previously presented) The method as defined in claim 17, wherein said pulse repetition frequency is varied by means of one of: a voltage controlled oscillator and a numerically controlled oscillator.

22. (Previously presented) The method as defined in claim 21, further comprising the steps of:

      providing a controllable delay circuit supplied with a reference signal at said pulse repetition frequency, and generating an output signal;

      determining the delay in said output signal by a predetermined set-point delay value, with which the controllable delay circuit is controlled; and

      obtaining a scanning trigger signal from a transmission trigger signal by means of the controllable delay circuit.

23. (Previously presented) The method as defined in claim 17, wherein the amount of interference is obtained by a comparison of the pulse associated with said reflected profiles with a predetermined reference pulse.

24. (Currently Amended) The method as defined in claim 17, wherein the amount of interference is obtained by one of: ~~the~~ a difference between ~~the~~ a maximum and minimum deviation in said reflection profiles from a predetermined value, and ~~the~~ a difference between ~~the~~ a maximum and minimum deviation from a reference profile in a predetermined time slot or spacing slot.

25. (Currently Amended) The method as defined in claim 17, wherein the frequency and/or phase of said scanning pulses, upon a variation in said pulse repetition frequency, is adapted such that ~~the~~ a difference between said scanning frequency and said pulse repetition frequency does not exceed a predetermined range or is constant.

26.   (Currently Amended)   A method for increasing the interference resistance of a time domain reflectometer, comprising the steps of:

generating a transmission pulse at a pulse repetition frequency;

coupling said transmission pulse into a waveguide;

scanning a reflected signal which is reflected back by a reflector in contact with the waveguide, for time-expanded display as a reflection profile with scanning pulses repeated at a scanning frequency;

continuously obtaining measured values, from said reflection profiles, that contain the distance of the reflector to a process terminal; and

using an algorithm for deciding the usability of said measured values, said algorithm comprising:

varying said scanning frequency and said pulse repetition frequency;

applying ~~one of the following conditions:~~ the time-expanded display of said reflection profiles which remains unchanged, ~~and~~ or if said reflection profiles change over time, applying the change in the known time expansion ~~is known~~ and ~~is~~ taken into account in the evaluation of the profiles;

determining the amount of interference and obtaining the measured value from the measurement of said reflected profiles or a part thereof; and

checking the usability of the measured value by evaluating the amount of interference, and continuing with the ~~variance~~ step of varying said scanning frequency and said pulse repetition frequency.

27. (Currently Amended) The method as defined in claim 26, wherein the algorithm comprises the following further steps:

executing the steps of claim 26 multiple times; and

selecting the most likely measured value from the measured values determined in said ~~multiple executing~~ step of executing the steps of claim 26 multiple times and using that value.

28.   (Previously presented)   A circuit arrangement for increasing the interference resistance of a time domain reflectometer, comprising:

a trigger generator for generating a transmission trigger signal with a variable pulse repetition frequency that is variable by a control signal, and a scanning trigger signal with a frequency and/or phase difference from said transmission trigger signal;

a scanning generator for generating transmitting and scanning pulses, respectively caused by said transmitting and said scanning trigger signal;

a scanning unit capable of scanning said transmission pulses which are returned from a waveguide for time--expanding display as a reflection profile; and

a control unit for evaluating said reflection profile and generating said control signal which adjusts the phase or frequency difference between said trigger signals, and with which said trigger generator is made to vary said variable pulse repetition frequency.

29. (Currently Amended)   The circuit arrangement as defined in claim 28, wherein said trigger generator includes a controlled oscillator which is controlled by one of: voltage and numerical, and which oscillates at said variable pulse repetition frequency.

30. (Previously presented) The circuit arrangement as defined in claim 29, wherein said trigger generator includes a controllable delay circuit which is subjected to the output signal of said controlled oscillator, and whose output signal represents said scanning trigger signal.

31. (Currently Amended) The circuit arrangement as defined in claim 29, further comprising:

a regulator, and wherein said trigger generator further includes a further controlled oscillator which oscillates at ~~said~~ a scanning frequency, and optionally the difference in frequencies of the oscillations of both controlled oscillators is set to a predetermined value by said regulator and kept constant.

32. (Currently Amended) The circuit arrangement as defined in claim 31, wherein said oscillators are embodied as an oscillator bank in order to furnish a constant frequency difference between said variable pulse repetition frequency and ~~said~~ the scanning frequency.